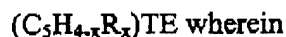


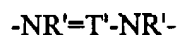
10. (canceled)
11. (canceled)
12. (canceled)
13. (canceled)
14. (Previously Presented) A process for olefin polymerization comprising contacting, under olefin polymerization conditions, one or more olefin monomers with an activated Group-3 or Lanthanide metal stabilized by
 - a) a monoanionic bidentate ligand, and
 - b) two monoanionic ligands,wherein the bidentate ligand and the metal form a metallocyclic ring comprising at least five atoms.
15. (canceled)
16. (canceled)
17. (Previously Presented) The process for olefin polymerization of claim 14 wherein the metal comprises scandium or yttrium.
18. (Previously Presented) The process for olefin polymerization of claim 14 wherein the bidentate ligand has the formula:



- a) x is a number from 0 to 4,
- b) each R is, independently, a radical selected from
 - (i) C₁-C₂₀ hydrocarbyl radicals,

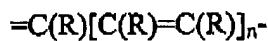
- (ii) C_1 - C_{20} substituted hydrocarbyl radicals wherein one or more hydrogen atoms are replaced by a halogen atom, amido, phosphido, alkoxy or aryloxy or other Lewis-acid- or -base-containing radical,
 - (iii) C_1 - C_{20} hydrocarbyl-substituted Group-14 metalloid radicals, or
 - (iv) halogen radicals, or
 - (v) two adjacent R-groups are joined to form a C_4 - C_{20} ring to give a saturated or unsaturated polycyclic cyclopentadienyl ligand
- c) T is a covalent bridging group containing a Group-14 or -15 element;
- d) E is a π -donating ligand or JR'_z wherein
- (vi) J is an element from Group-15 or -16;
 - (vii) z is 2 when J is a Group-15 element and 1 when J is a Group-16 element;
 - (viii) each R' is independently a radical selected from
 - 1) C_1 - C_{20} hydrocarbyl radicals,
 - 2) a substituted C_1 - C_{20} hydrocarbyl radical wherein one or more hydrogen atoms is replaced by a halogen atom, amido, phosphido, alkoxy or aryloxy or other Lewis-acid- or -base-containing radical or
 - 3) C_1 - C_{20} hydrocarbyl-substituted, Group-14 metalloid radicals.

19. (Currently Amended) The process for olefin polymerization of claim 14 wherein the ancillary ligand has the formula:

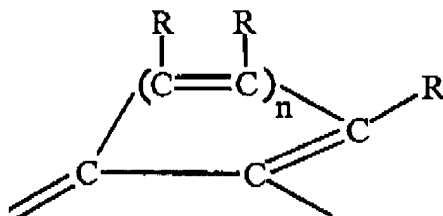


wherein

- a) N is nitrogen,
- b) each R' is independently a radical selected from the group consisting of C₁-C₂₀ hydrocarbyl radicals, substituted C₁-C₂₀ hydrocarbyl radicals wherein one or more hydrogen atoms are replaced by a halogen atom, and C₁-C₂₀ hydrocarbyl-substituted metalloid radicals wherein the metalloid is selected from Group 14 of the Periodic Table of the Elements
- c) T' is a covalent bridging group selected from



and



wherein each R is, independently, a radical selected from

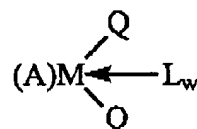
- (i) C₁-C₂₀ hydrocarbyl radicals,
- (ii) C₁-C₂₀ substituted hydrocarbyl radical wherein one or more hydrogen atoms is replaced by a halogen atom, amido, phosphido, alkoxy or aryloxy or other Lewis-acid- or -base-containing radical,
- (iii) C₁-C₂₀ hydrocarbyl-substituted Group-14 metalloid radicals,
- (iv) halogen radicals, or
- (v) two adjacent R groups ~~are~~ joined to form a C₄-C₂₀ ring;

(vi) ~~except that~~ R independently may also be hydrogen except for R groups attached to the carbon atoms directly bonded to the nitrogen atoms, and

~~(vi)~~ (vii) n is 1, 2, 3, or 4.

20. (Previously Presented) A process for olefin polymerization comprising:

- a) activating a metal complex to a cationic form, wherein the metal complex comprises a Group-3 or Lanthanide metal complex of the formula



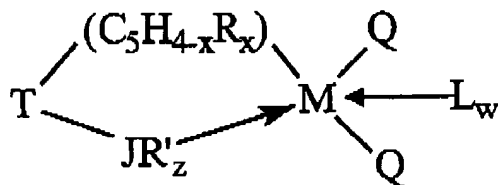
wherein,

- (i) M is a Group-3 or Lanthanide metal;
- (ii) A is a monoanionic bidentate ancillary ligand which forms a metallocycle with at least 5 primary atoms;
- (iii) each Q is independently a monoanionic ligand;
- (iv) L is a neutral Lewis base; and
- (v) w is a number from 0 to 3;

and

- b) contacting one or more olefin monomers with the activated metal complex under olefin polymerization conditions.

21. (Previously Presented) The process for olefin polymerization of claim 20, wherein the Group-3 or Lanthanide metal complex has the formula

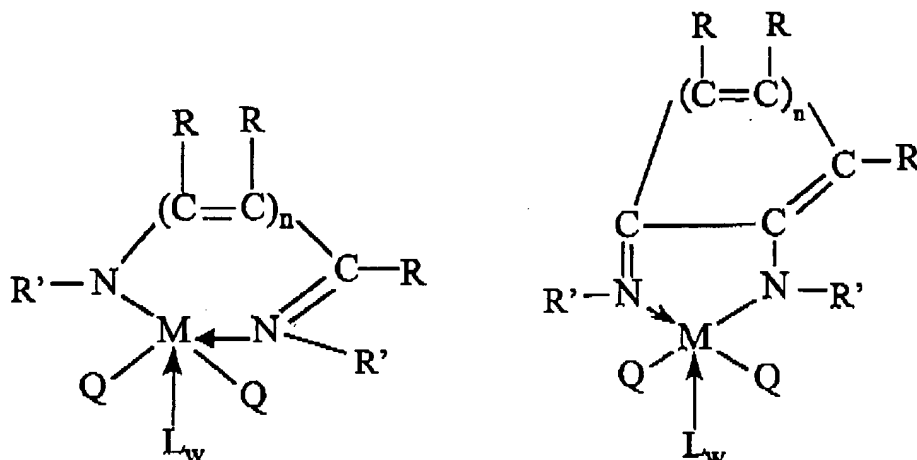


wherein

- a) M is a Group-3 or Lanthanide metal;
- b) $C_5H_{4-x}R_x$ is a cyclopentadienyl ring covalently π -bound to M and substituted with from zero to four substituent groups R;
- c) x is a number from 0 to 4 denoting the degree of substitution of $C_5H_{4-x}R_x$;
- d) each R is, independently, a radical selected from C_1 - C_{20} hydrocarbyl radicals, C_1 - C_{20} substituted hydrocarbyl radicals wherein one or more hydrogen atoms are replaced by a halogen atom, amido, phosphido, alkoxy or aryloxy or other Lewis-acid- or -base-containing radical, C_1 - C_{20} hydrocarbyl-substituted metalloids wherein the metalloid is selected from Group-14 elements, and halogen radicals, or $C_5H_{4-x}R_x$ is a cyclopentadienyl ring in which two adjacent R-groups are joined to form a C_4 - C_{20} ring to give a saturated or unsaturated polycyclic cyclopentadienyl ligand which may be additionally substituted with one or more R groups;
- e) T is a covalent bridging group containing a Group-14 or -15 element;
- f) J is a Group-15 or -16 element;
- g) z is 2 when J is a Group-15 element and 1 when J is a Group-16 element;
- h) each R' is independently a radical selected from C_1 - C_{20} hydrocarbyl radicals, substituted C_1 - C_{20} hydrocarbyl radicals wherein one or more

hydrogen atoms is replaced by a halogen atom, and C_1-C_{20} hydrocarbyl-substituted metalloid radical wherein the metalloid is selected from Group-14 elements;

- i) each Q is independently a univalent anionic ligand;
 - j) L is a neutral Lewis base; and
 - k) w is a number from 0 to 3.
22. (Previously Presented) The process for olefin polymerization of claim 21 wherein M is scandium, yttrium or lanthanum.
23. (Previously Presented) The process for olefin polymerization of claim 21 wherein T is a dialkyl, alkylaryl or diaryl silicon or germanium radical.
24. (Previously Presented) The process for olefin polymerization of claim 21 wherein T is alkyl or aryl phosphine or amine radical or a hydrocarbyl radical.
25. (Previously Presented) The process for olefin polymerization of claim 21 wherein J is oxygen, sulfur, nitrogen or phosphorus.
26. (Previously Presented) The process for olefin polymerization of claim 21 wherein J is nitrogen.
27. (Previously Presented) A process for olefin polymerization comprising
- a) activating a Group-3 or Lanthanide metal complex to a cationic form wherein the metal complex has one of the formulas:



wherein

- (i) M is a Group-3 or Lanthanide metal;
- (ii) each R' is independently a radical selected from the group consisting of C_1 - C_{20} hydrocarbyl radicals, substituted C_1 - C_{20} hydrocarbyl radicals wherein one or more hydrogen atoms are replaced by a halogen atom, and C_1 - C_{20} hydrocarbyl-substituted metalloid radicals wherein the metalloid is selected from Group 14 of the Periodic Table of the Elements
- iii) each R is independently hydrogen, halogen, a C_1 - C_{20} hydrocarbyl, or a substituted C_1 - C_{20} hydrocarbyl wherein one or more hydrogen atoms is replaced by a halogen atom, amido, phosphido, alkoxy or aryloxy or other Lewis-acid- or -base-containing radical, C_1 - C_{20} hydrocarbyl-substituted metalloid radical wherein the metalloid is selected from Group-14 elements, or two adjacent R -groups are joined to form a C_4 - C_{20} ring, except that R independently may also be hydrogen except for R groups attached to the carbon atoms directly bonded to the nitrogen atoms;
- (iv) n is 1, 2, 3, or 4;

(v) each Q is independently a monoanionic ligand;

(vi) L is a neutral Lewis base; and

(vii) w is a number from 0 to 3;

and

b) contacting one or more olefin monomers with the activated metal complex under olefin polymerization conditions.

28. (Previously Presented) The complex of claim 27 wherein M is scandium, yttrium, or lanthanum.

Respectfully submitted,

10/26/04
Date

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